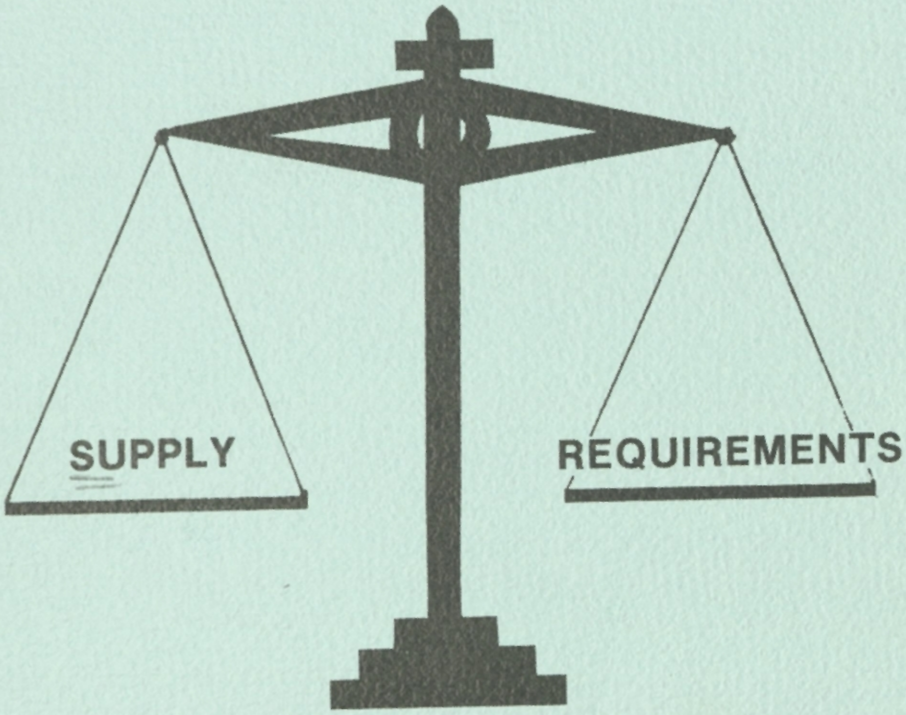
THE GEOGRAPHIC AND SPECIALTY DISTRIBUTION OF PHYSICIANS IN FLORIDA



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FORWARD

Counting the number of physicians there are in Florida is a straightforward task. Computing how many there should be is much more difficult.

Years ago the relationship of physicians to population was generally expressed as a single value, total physicians to total population.

This single value had meaning in the days when nearly all practitioners were generalists. But with the advent of specialization and limited practices, the need for the different specialists has come to vary widely.

The determination of how many practitioners, even of a specialty or a subspecialty of medicine, are adequate for a community of a given size is obscure due to the interplay of many factors. In addition to variation of social factors in the community there is variance in physician productivity associated with age, sex, custom and other local influences.

Nevertheless there must be indicators of over-, under-, adequate- supply that can serve as guides. Although there is no agreement on what the consequences of a "physician glut" might be, medical education in its present form is far too expensive to be wasted.

Graduate Medical Education is the supplier of practitioners of the future. This is a heavy responsibility currently threatened by impending changes in hospital delivery of care, the support base of Graduate Medical Education.

It is for this reason -- the need to know where we are and an indication of where we are going -- that the attached analysis was undertaken.

Kenneth E. Penrod

17 November 1983

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PRACTICE SUPPLY AND REQUIREMENTS

In August 1983 the headcount of physicians (MD and DO) active in patient care in Florida was published (1). Data were presented for each specialty and each county of the state and further broken in categories of full time practice, medical school faculty, housestaff (interns, residents and fellows), federally employed (five VA hospitals and eight military base hospitals) and state employed. An effort was made to eliminate all physicians who are retired, inactive for other reasons, practicing less than 20 hours per week, or were born prior to 1910. No effort was made to fractionate those practicing more or less than 40 hours per week.

To convert these headcount totals to practice equivalents certain assumptions are necessary. We have adopted the premise of the Graduate Medical Education National Advisory Committee (GMENAC) that housestaff on the average devote one-third of their effort to patient care. So intern-resident-fellow headcounts are factored at 0.35 to obtain full time equivalent (FTE) practitioners.

GMENAC did not factor medical school faculty but we perceive a consensus they should be factored. For this study medical school faculty are factored at 0.5 of full time practitioners.

All other physicians listed under a specialty are considered full time equivalents in patient care regardless of hours of practice or practice setting.

Given the supply of physicians by specialty shown in Table 1, how can we best determine adequacy or shortage?

The GMENAC Approach

The federally sponsored Graduate Medical Education National Advisory Committee was created in 1976 by the Secretary of Health, Education and Welfare. It consisted of 23 members: 18 physicians, two nurses and three laymen. Over 200 additional contributors to the effort were recruited for specific purposes and opinions.

In September 1980 Volume I, a summary report, was submitted and this was followed immediately by six more volumes detailing the methodology and findings.

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(1) The Geographic and Specialty Distribution of Physicians in Florida. August 1983. Census.

Table 1

STATEWIDE PHYSICIAN COUNT, MD + DO

Total Physicians	Headcount	Practice FTE
MD	20,520	18,769
DO	991	938
	21,511	19,707
Emergency Medicine (1)	912	888
Family/General Practice	3.940	3,717
Internal Medicine, General	2,389	2,133
Pediatrics - General	1,224	1,041
Obstetrics/Gynecology	1,144	1,016
Pediatrics - Specialties	103	78
Gynecology	204	204
Allergy	97	93
Cardiology	631	591
Dermatology	333	311
Gastroenterology	274	253
Hematology	102	89
Neurology	302	268
Nephrology	118	104
Pulmonary Disease	220	199
Rheumatology	104	97
Anesthesiology	959	858
Surgery, General	1,384	1,220
Surgery, Thoracic/Cardiovasc	263	254
Surgery, Neurological	174	150
Surgery, Orthopedic	832	770
Surgery, Plastic	247	233
Ophthalmology	803	741
Otorhinolaryngology	347	329
Urology	513	490
Oncology	120	109
Pathology	592	515
Psychiatry	1,067	985
Child Psychiatry	71	68
Radiology, Diagnostic	979	894
Radiology, Therapeutic	98	87

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(1) Estimate, not count.

Despite the name of the committee and its initial charge, relatively little of the final report deals with graduate medical education. Instead, the report deals almost exclusively with physician manpower -- in 1978, 1990 and 2000.

The committee soon found it necessary to design a totally new methodology to establish requirements for the future. It is not surprising that the methodology employed and the conclusions and recommendations stemming therefrom have been subjected to much criticism.

To understand the problem of manpower projection the meaning of "need" and "demand" must be clearly differentiated.

In its simplest form "need" generally refers to a determination of the morbidity extant, or likely to occur, in a population and what professional services will be necessary to bring about correction.

"Demand", on the other hand, looks at morbidity as but one of several forces in a population competing for available financial resources and demand for professional services will be quite labile: high in "good times" and low in "bad times".

Physicians characteristically are more apt to think of manpower requirements in terms of need rather than demand. And needs-based projections generally are higher than demand-based projections.

In the methodology finally adopted by GMENAC needs-based requirements were developed by panels of consultants made up largely of practitioners in each of the specialties. These figures then were generally scaled down, sometimes in arcane ways, by a smaller "modeling panel" that presumably brought a greater demand-based approach. In any event, the name given to the total process was "adjusted needs-based model".

Members of the committee, and others close to the workings of the committee, have been more humble about their work than much criticism has implied. They have consistently inveighed against over-reliance on the data and especially its application to relatively small population areas. They clearly stated in the final report that the methodology employed was untested but that the construction of new methodology was necessary since acceptable alternatives did not exist.

And herein is the key to the use of GMENAC formulae:

THEIR FUTURE REQUIREMENTS ARE NOT PERFECT, MAYBE NOT EVEN CLOSE. APPLICATION MUST BE TO LARGE POPULATIONS ONLY AND THEN SMALL DIFFERENCES ARE OF NO SIGNIFICANCE. BUT DIFFERENCES ARE LIKELY TO BE OF VALUE AS INDICATORS OF OVER-, UNDER-SUPPLY.

IT IS THE BEST WE HAVE!

Two extraordinary factors are frequently mentioned in discussions of physician manpower requirements in Florida -- the high proportion of older people and the large number of both short- and long-term visitors.

The Age Factor

It is estimated that in 1985 nearly 2.0 million of Florida's 10.7 million permanent residents will be 65 years of age or older (1). This 18% of the population compares with 12% in the United States as a whole (2). Current projections indicate this margin will hold relatively constant throughout the remainder of this decade.

The significance of this high proportion of older people is in the frequency of use of physician services. Data collected in the National Health Interview Survey of the National Center for Health Statistics showed the following (1980):

Age Group	Physician Visits Per Person Per Year
All ages	4.8
65+	6.4 (+33%)

What, then, is the impact of this higher than average over-65 group on physician requirements? It can be computed thusly.

"Excess" over 65's = 6% of total population (18% vs 12%)
6% x 10,588,000 = 635,280

Their physician utilization is one third higher than that of a younger population.

635,280 x 33.3% = 211,550

This figure represents the population equivalent that would utilize physician services an average extent, so should be added to the Florida population figure to determine requirements.

With a few exceptions such as Obstetrics and Pediatrics, the impact of the age factor falls across all of the medical and surgical specialties.

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(1) Population Division, University of Florida College of Business Administration Bulletin No. 64. May 1983.

(2) Statistical Abstract of the U.S., 1982-83. P.8.

There is some geographic maldistribution factor, however, as the following table shows.

PROJECTIONS FOR 1985*

County	65+	Total Population	% 65
Alachua	12,400	173,100	7.16
Brevard	43,400	303,500	14.30
Broward	261,700	1,169,100	22.38
Dade	291,300	1,843,300	15.80
Duval	60,700	587,500	10.33
Escambia	24,000	246,600	9.73
Hillsborough	82,500	700,100	11.78
Lake	31,300	210,600	25.95
Lee	56,600	250,600	11.58
Leon	11,200	168,900	6.63
Manatee	44,700	169,700	26.34
Marion	26,500	150,100	17.65
Okaloosa	8,200	120,000	6.83
Orange	58,600	523,300	11.20
Palm Beach	165,700	687,700	24.09
Pasco	75,000	246,600	30.41
Pinellas	220,800	796,000	27.74
Polk	52,600	358,800	14.66
Sarasota	71,800	239,800	29.94
Seminole	22,900	222,900	10.27
Volusia	69,800	301,200	23.17
State	1,935,800	10,694,300	18.1

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* Population Division, University of Florida College of Business Administration Bulletin No. 62. November 1982.

Florida Visitors

The Florida Division of Tourism, a unit of the Department of Commerce, has been keeping statistics for a number of years. The method of obtaining their data is shown on the following page.

A Statement of Method

The 1982 Annual Tourism Report is composed of survey data collected on a quarterly basis. The Quarterly Surveys are designed as random probability samples of the total visitor or non-resident population in Florida. The primary goal of the sample design is that every visitor to Florida from out of state has a known and equal chance of being interviewed.

All interviews are conducted face to face. All respondents have met one of two conditions: they are more than 100 miles from their current or legal residence or they have been in the State of Florida more than 24 hours. Commuters, military personnel on transfer status and residents of Alabama and Georgia not meeting the requirements for interview are excluded.

During 1982, 8,839 randomly selected visitors were interviewed (4,005 Air, 4,834 Auto).

Quarter	Air Visitors	Auto Visitors
First	976	1206
Second	1031	1223
Third	943	1203
Fourth	1055	1202

The size of the statistical bases for quarters will indicate the degree of confidence and reliability of the sample.

Interviews were conducted with exiting Florida visitors on the following highways: I-10, US-231, I-75, I-95, and US-1. Interviews were also conducted in the departure lounges of non-stop commercial flights leaving the State of Florida at the following airports: Miami, Ft. Lauderdale, West Palm Beach, Orlando, Tampa, Jacksonville, Sarasota, and Ft. Myers. Quotas at each interview site were weighted according to traffic volume at these highways and airports.

The excellent cooperation of the Florida Highway Patrol, the Florida Highway Patrol Auxiliary, the Florida Department of Transportation, and the Security Administrations of each airport facilitated the researching necessary to produce this report.

Questionnaires are administered by an outside contractor, Rife Market Research, working under the supervision of the Division of Tourism, Office of Marketing Research. Completed questionnaires are forwarded to the Office of Marketing Research in Tallahassee for data processing. These surveys are processed by the A.M.I.C. (Administrative Management Information Center) facilities of the Department of General Services, State of Florida.

Because of budget restrictions and availability of data, estimates of visitor volume and expenditures for the "Other Modes of Travel" category are produced on an annual basis.

The total number of visitors and their mode of arrival is shown below.

VISITORS TO FLORIDA - FIVE YEAR RECORD

	By Air	By Auto	By Other	International	Total
1978	10,309,000	22,060,000	647,000	1,004,000	34,020,000
1979	12,005,000	20,845,000	1,314,000	1,500,000	35,664,000
1980	11,904,000	20,618,000	1,301,000	2,100,000	35,923,000
1981	11,168,000	20,431,000	1,306,000	3,000,000	35,905,000
1982	12,288,000	22,887,000	1,371,000	2,773,000	39,319,000

The data do not provide separation of the short-term vacationer/conventioner/business person, etc., from the seasonal resident who is likely to spend several months here. In general terms, the air visitor is likely to be on a short-term mission (except, perhaps, international visitors) whereas those intending to remain for weeks or months will bring a car or van.

The 39.3 million visitors in 1982 can be equated to an additional population of 1.33 million in the following way:

The 12.288 million visitors arriving by air stayed an average of 10 nights. The length of stay equals 2.74% of a full year (10/365).

2.74% x 12.288 million = 336,691 full year equivalents.

The 22.887 million arriving by auto stayed an average of 13.9 nights. This represents 3.8% of a full year.

3.8% x 22.887 million = 871,995 full year equivalents.

The 4.144 million remaining visitors (arriving by "other" and International) stayed an average of 11 nights. Eleven nights equals 2.01% of a full year.

3.01% x 4.144 million = 124,734 full year equivalents.

The sum of the above is 1,333,420 full year (or permanent resident) equivalents.

The above population equivalency adds approximately 12% to the Florida population, a proportion that appears to have held fairly constant over recent years.

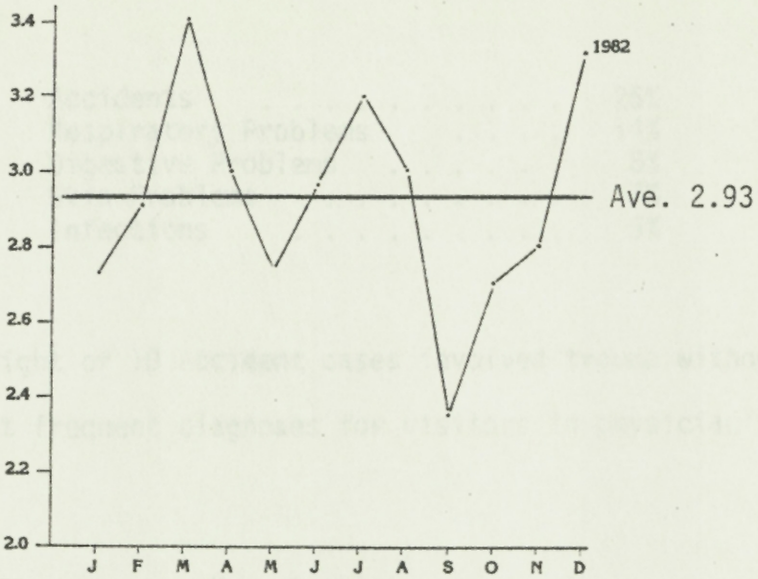
The burden of providing for this transient population is not spread equally across the state. By far the primary target area for visitors is what the Division of Tourism designates "Orange-Osceola-Walt Disney World". This area accounts for nearly 18% of the visitors to the state. Last year 14 other counties were credited with over one million out-of-state visitors as shown below.

VISITORS BY COUNTY, 1982

Orange, Osceola, Disney World	6,891,323
Volusia	4,595,298
Dade	3,877,083
Broward	3,263,985
Pinellas	3,052,337
Okaloosa	2,389,393
Hillsborough	2,068,275
Palm Beach	1,880,952
Duval	1,867,107
Escambia	1,806,906
Brevard	1,568,405
Sarasota	1,436,376
Bay	1,141,004
Lee	1,179,974
Monroe	1,005,519

It is commonly assumed that there is wide disparity in the number of visitors to the state throughout the year. While this may be so in certain regions, on a statewide basis the number of visitors is spread throughout the year as the following graph shows.

AIR AND AUTO VISITORS
(millions)



In 1975 a study was undertaken by the Department of Epidemiology of the University of Miami School of Medicine to shed light on the medical care demands of the large number of visitors to Florida. Five representative counties were chosen for study: Bay, Dade, Marion, Orange and Pinellas.

Two major modes of health services delivery available to visitors were examined -- hospital emergency rooms (16 in the sample) and physician offices (237 in the sample). Visitors account for just over 8% of all emergency room visits in the study and 5.6% of the physician office visits. Both of these utilization figures are a little below the 12% computed above for visitor proportion of the population.

The pattern of utilization of resources showed a strong tendency for the younger patient (under 44) to rely on emergency rooms with the older patient (65 and above) to favor the physician's office.

Age	Visitor Population Distribution	Emergency Room Visits	Physician Office Visits
0-44	47%	65%	21%
45-64	33%	20%	18%
65+	20%	15%	61%

The principal diagnoses in the Emergency Room visits were as follows:

Accidents	25%
Respiratory Problems	14%
Digestive Problems	8%
Skin Problems	7%
Infections	5%

About eight of 10 accident cases involved trauma without fracture.

The most frequent diagnoses for visitors in physician's offices were:

Hypertension
Medical Examination
Respiratory Infection
Arteriosclerosis
Diabetes Regulation

From the standpoint of physician manpower requirements the above discussion of visitors' health needs would seem to indicate

- Although visitor equivalency to resident population of the state is about 1.33 million, or 12% of the permanent population, data on the use of the health care system suggest nearer 10% be used, or an added population of 1.06 million.
- Since three specialties -- Emergency Medicine, Family/General Practice and General Internal Medicine -- provide the bulk of the added care for visitors, this factor should be reckoned in their requirements determination.
- In similar logic perhaps half of this added visitor load should be used in computing requirements for orthopedists.
- The application of this factor will vary with regions of the state but that is beyond the scope of this statewide computation.

The GMENAC Report of 1980 proposed target figures, termed requirements, for most medical specialties for the country as GMENAC visualized it to be in 1990. The projected US population for that date is 243,513,000. For instance, they concluded the total number of physicians required would be 446,000 or one for 522.6 persons.

If GMENAC requirements values for each specialty (for 1990) be applied to the State of Florida in 1983, with due regard for the population to be served, a measure of present adequacy can be provided.

Such computation is set out below.

Table 2

Specialty	Active Florida Physicians, 1983 (From Table 1)	Computed (1) Requirements	Over (Under)
Emergency Medicine	888	658	230
Family/General Practice	3717	4091	(374)
Internal Medicine, General	2133	3422	(1289)

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(1) Based on GMENAC standards for 1990 and adjusted Florida population of 10.588 million + 1.06 (visitor factor) + 0.21 (age factor) = 11.86 million

(continued)

Table 2, continued:

Specialty	Active Florida Physicians, 1983 (From Table 1)	Computed Requirements	Based on Pop. of (million)	Over (Under)
Pediatrics, General	1041	1316	10.59	(275)
Pediatrics, Specialties	78	267		(189)
Obstetrics/Gynecology	1016	1044		176
Gynecology	204			
Orthopedics	770	702	11.13	68
Allergy	93	91	10.80	---
Cardiology	591	344		247
Dermatology	311	308		---
Gastroenterology	253	288		(35)
Hematology	89	399		(201)
Oncology	109			
Neurology	268	244		24
Nephrology	104	122		(18)
Pulmonary Diseases	199	160		39
Rheumatology	97	75		22
* Anesthesiology	858	931		(73)
Surgery, General	1220	1042		178
Surg, Thoracic/Cardiovasc	254	91		163
Surgery, Neurological	150	118		32
Surgery, Plastic	233	120		113
Ophthalmology	741	514		227
Otorhinolaryngology	329	355		(26)
Urology	490	342		148
* Pathology	515	599		(84)
Psychiatry	985	1707		(722)
Child Psychiatry	68	399		(331)
* Radiology, Diagnostic	894	798		183
* Radiology, Therapeutic	87			

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* GMENAC did not examine. GMENAC requirements are crude estimates from literature and specialty studies. Should be considered approximations only.

By GMENAC criteria Florida is still seriously short of the following specialties:

General Internal Medicine	-1289
General Psychiatry	- 722
Family/General Practice	- 374
Child Psychiatry	- 331
General Pediatrics	- 275
Hematology	- 201
Pediatric Subspecialties	- 189
* Pathology	- 84
* Anesthesiology	- 73

At the other end of the scale those specialties now showing the largest oversupply are:

Cardiology	+ 247
Emergency Medicine	+ 230
Ophthalmology	+ 227
* Radiology (all)	+ 183
General Surgery	+ 178
Obstetrics and Gynecology	+ 176
Thoracic/Cardiovascular Surgery	+ 163
Urology	+ 148
Plastic Surgery	+ 113

The reader should be reminded again that these are at best indicators, not truly quantitative criteria. But with margins as wide as some of these, perhaps heed should be given by those reponsible for educational adjustments.

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* GMENAC did not examine. GMENAC requirements are crude extimates from literature and specialty studies. Should be considered approximations only.

A Final Word

Data are not now adequate to track or predict trends in the number of medical practitioners by specialty in Florida. Much of past growth has been through in-migration (and therefore uncontrollable) and record keeping has been minimal.

Historical data are available for total licensed physicians with Florida addresses.

That growth pattern is shown below:

Mid-	MD's	DO's	Total	Population (million)	Physician / 100,000 Population	Population per Physician
1970	7,544	573	8,117	6.79	120	837
1972	9,600	625	10,225	7.44	137	728
1974	11,400	730	12,130	8.25	147	680
1976	13,400	810	14,210	8.55	166	602
1978	15,450	890	16,340	8.91	183	545
1980	17,500	980	18,480	9.80	189	530
1982	20,200	1,100	21,300	10.35	207	486
1983	21,236	1,175	22,411	10.6	211	473

The data in Table 1 show 19,707 to be the full time equivalent physicians believed to be in active patient care. This is 88% of the total of 22,411 shown above and probably comes close to depicting active practitioners from among total licensees.